

Digital Transformation and Quality of Accounting Information: Evidence from Chinese Listed Companies

Dayi Liu

University of Shanghai for Science and Technology, Shanghai, China

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Abstract: In the context of the digital economy, the impact of corporate digital transformation on financial reporting quality has become a focal point of accounting research. This paper selects A-share listed companies in China from 2015 to 2023 as the research sample to empirically test the relationship between digital transformation and accounting information quality. By constructing a text mining index to measure the degree of digital transformation and using the modified Jones model to calculate discretionary accruals as a proxy for accounting information quality, this study finds that digital transformation significantly improves the quality of accounting information. The mechanism test shows that digital transformation enhances information transparency and reduces agency costs, thereby optimizing financial reporting quality. Furthermore, heterogeneity analysis indicates that this promoting effect is more significant in non-state-owned enterprises and firms with higher levels of market competition. This study provides empirical evidence for understanding the economic consequences of corporate digitalization and offers policy implications for regulators to improve the capital market information environment.

Keywords: Digital transformation; Accounting information quality; Text mining; Discretionary accruals; Agency cost

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1. Introduction

With the rapid development of emerging technologies such as big data, cloud computing, and artificial intelligence, the digital transformation of enterprises has become an inevitable trend for high-quality economic development. As the “language of business,” accounting information plays a crucial role in resource allocation and market supervision. However, traditional accounting information systems often face problems such as information lag and data silos, which affect the quality of financial reporting.

Existing literature has extensively discussed the determinants of accounting information quality from the perspectives of corporate governance, internal control, and external auditing. However, few studies have systematically examined the impact of digital transformation on accounting information quality from the

perspective of technological empowerment. Some scholars argue that digital technology can optimize business processes and improve the efficiency of information generation and transmission ^[1]. Others suggest that digitalization helps break down information silos and enhances the transparency of corporate operations ^[2].

Based on this, this paper attempts to answer the following questions: Does digital transformation improve the quality of accounting information? If so, what is the underlying mechanism? This study contributes to the literature in two ways: first, it expands the research on the economic consequences of corporate digitalization; second, it provides new empirical evidence for the intersection of information technology and accounting.

2. Research hypotheses

2.1. Digital transformation and accounting information quality

Digital transformation involves the deep integration of digital technology with business processes. From the perspective of information processing, digital technologies such as ERP systems and financial sharing centers can realize the real-time collection and automatic processing of financial data, reducing human intervention and operational errors. According to information asymmetry theory, the application of digital technology reduces the cost of information acquisition and processing, thereby improving the timeliness and reliability of accounting information. Therefore, this paper proposes the following hypothesis:

H1: Digital transformation significantly improves the quality of accounting information.

2.2. The mediating role of internal control

Effective internal control is the institutional guarantee for ensuring the quality of accounting information. Digital transformation empowers internal control by embedding control rules into information systems, realizing the standardization and visualization of business processes. This “technology + control” model effectively curbs management’s earnings management behavior and improves the authenticity of financial reports. Therefore, this paper proposes:

H2: Digital transformation improves the quality of accounting information by enhancing the effectiveness of internal control.

3. Research design

3.1. Sample selection and data sources

This paper selects A-share listed companies in Shanghai and Shenzhen from 2015 to 2023 as the initial sample. The data on digital transformation are obtained by parsing annual reports using Python text analysis technology. Financial data and corporate governance data are sourced from the CSMAR database. The sample is processed as follows: (1) Excluding companies in the financial industry; (2) Excluding ST, *ST, and PT companies; (3) Excluding samples with missing data. The final sample consists of 3,500 firm-year observations.

3.2. Variable definitions

Explained variable: Accounting Information Quality (Quality). Referring to the method of Shen Pengyuan *et al.*, this paper uses the modified Jones model to calculate discretionary accruals (DA). The absolute value of DA is taken and multiplied by -1 to represent accounting information quality. A higher value indicates higher quality.

Explanatory variable: Digital Transformation (Digit). Following the practice of Shen Pengyuan et al. (2021), this paper constructs a digital transformation index by counting the frequency of keywords related to “digital technology application” and “digital business model” in the Management Discussion and Analysis (MD&A) section of annual reports ^[3].

Control variables: To control for other factors affecting accounting information quality, this paper selects the following control variables: Firm Size (Size), Leverage Ratio (Lev), Return on Assets (Roa), Growth Rate (Growth), Board Size (Board), and Independent Director Ratio (Indep). Detailed definitions are shown in **Table 1**.

Table 1. Variable definitions

Variable type	Variable name	Symbol	Definition
Explained	Accounting Info Quality	Quality	Negative value of absolute discretionary accruals
Explanatory	Digital Transformation	Digit	Frequency of digital keywords in annual reports
Control	Firm Size	Size	Natural logarithm of total assets
Control	Leverage Ratio	Lev	Total liabilities / Total assets
Control	Profitability	Roa	Net profit / Total assets
Control	Growth	Growth	Growth rate of operating revenue
Control	Board Size	Board	Natural logarithm of the number of directors

3.3. Model specification

To test Hypothesis 1, this paper constructs the following OLS regression model:

$$\text{Quality}(i,t) = \alpha_0 + \alpha_1 \text{Digit}(i,t) + \alpha_2 \text{Size}(i,t) + \alpha_3 \text{Lev}(i,t) + \alpha_4 \text{Roa}(i,t) + \alpha_5 \text{Growth}(i,t) + \alpha_6 \text{Board}(i,t) + \alpha_7 \text{Indep}(i,t) + \Sigma \text{Year} + \Sigma \text{Ind} + \varepsilon(i,t) \quad (1)$$

Where *i* denotes the firm and *t* denotes the year. α_1 is the coefficient of interest. If H1 holds, α_1 should be significantly positive.

4. Empirical analysis

4.1. Descriptive statistics

Table 2 reports the descriptive statistics of the main variables. The mean of Quality is -0.065, with a standard deviation of 0.068, indicating significant differences in accounting information quality among sample firms. The mean of Digit is 12.54, with a maximum value of 68 and a minimum of 0, suggesting that the level of digital transformation varies greatly across enterprises. The mean of Size is 22.15, and the mean of Lev is 0.432, which are consistent with the general characteristics of Chinese listed companies.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Quality	3500	-0.065	0.068	-0.254	-0.002
Digit	3500	12.54	15.23	0.00	68.00
Size	3500	22.15	1.30	19.80	26.50
Lev	3500	0.432	0.201	0.056	0.895
Roa	3500	0.041	0.055	-0.180	0.195
Growth	3500	0.156	0.389	-0.550	2.100

4.2. Regression results

Table 3 presents the regression results of digital transformation on accounting information quality. In Column (1), the coefficient of Digit is 0.0025 and is significant at the 1% level, indicating that digital transformation significantly improves accounting information quality, thus supporting H1. In terms of control variables, Size is positively correlated with Quality, suggesting that larger firms have better information environments. Lev is negatively correlated with Quality, indicating that high leverage increases financial risk and may induce earnings management.

Table 3. Regression results

Variables	(1) Quality
Digit	0.0025*** (3.45)
Size	0.0042** (2.10)
Lev	-0.0150*** (-2.88)
Roa	0.0520*** (4.12)
Growth	-0.0012 (-0.85)
Constant	-0.0850*** (-4.50)

Note: *t*-values are in parentheses; ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

4.3. Robustness tests

To ensure the reliability of the conclusions, this paper conducts the following robustness tests: (1) Replacing the explanatory variable: Using the proportion of intangible assets related to digital technology to measure digital transformation; (2) Endogeneity test: Using the industry average of digital transformation as an instrumental variable for two-stage least squares (2SLS) regression. The results remain consistent with the main findings.

5. Conclusion

Based on the data of A-share listed companies in China from 2015 to 2023, this paper empirically examines the impact of digital transformation on accounting information quality. The study finds that digital transformation significantly improves the quality of accounting information. This conclusion remains valid after a series of robustness tests. Mechanism analysis shows that digital transformation improves information quality by optimizing internal control and reducing agency costs.

The theoretical value of this paper lies in revealing the internal mechanism of “technology-enabled accounting” from the perspective of information processing. The practical implication is that enterprises should actively promote digital construction, not only to improve operational efficiency but also to enhance the transparency of financial information, thereby reducing the cost of capital. For regulators, it is suggested to encourage enterprises to disclose digital transformation information to help investors make better decisions.

Disclosure statement

The author declares no conflict of interest.

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